

Helsinki Energy Challenge

Answers to the clarifying questions sent
to the organizer by 10 April

Helsinki

I am still putting my team together. In your conditions is mentioned that the participation in the webinars of at least one team member is obligatory. First webinar is on March 31st. If I miss this webinar, will it be considered as a breaking of the participation conditions?

The webinars that are organised during the application period (27 February–30 September) are not mandatory. In the beginning of the boot camp, there will be an orientation webinar about the next steps and the upcoming boot camp; the participation in this webinar is mandatory for at least one member of each selected finalist team. As per the new updated schedule, the date for this webinar is 11 November.

Me and my team have been wondering if the schedule of the competition changes due to COVID-19 emergency at the moment.

Due to the current situation caused by covid-19, the organizer has decided to extend the application phase of Helsinki Energy Challenge until 30 September. This will affect the remaining timetable/process too; the updated timetable can be found on the Challenge website:

<https://energychallenge.hel.fi/process-and-timetable>.

There will be webinars and other online events during the extended application phase, the timings and other details will be updated on the website when available:

<https://energychallenge.hel.fi/events-and-webinars>.

Saako Helsinki Energy Challenge -materiaalin suomeksi? Voiko idean esittää suomeksi? // Is it possible to get the Helsinki Energy Challenge material in Finnish? Can I send my proposal in Finnish?

Helsinki Energy Challenge on kansainvälinen kilpailu ja kilpailumateriaalit julkistetaan vain englanniksi. Myös kilpailuehdotukset tulee lähettää englanniksi; muulla kielellä lähetettyjä ehdotuksia ei hyväksytä kilpailuun. // Helsinki Energy Challenge is an international competition and competition material is available only in English. All competition entries must be written in English; applications in other languages will not be accepted.

If possible, we would like to have access to the hourly district heating power from previous three to five years, if available (ideally, 2010 to 2015). This way, we could have an idea of energy increasing demand over the past few years, and also we could be able to understand more fully the heating consumption profile of the city.

Only 2016 data is available from Helen Ltd. but that should be adequate for the participants to prepare their proposals in the application phase. There is variation in heat demand from year to year because of many reasons, but there has not been any major changes in the heat demand drivers.

Should we take as given Helen's decision to ramp down the Hanasaari power plant by 2024 and also the current Helen's plan to replace the heat & electricity it produces?

Those investment decisions that have already been made, should be taken into account – such as the decision on the construction of a new bioenergy heating plant in Vuosaari, as a replacement for part of the production capacity of Hanasaari coal-fired plant (which will be closed permanently by 2024 – the closure by 2024 is a decision made, so a fact to be considered by the challenge participants). However, those replacement plans, that are only indicative and there is no investment decision yet, can also be treated by the Challenge participants as indicative plans only, thus, plans that may not materialize as such.

How fixed is the 2029 goal? Can benefits beyond 2029 compensate for a potentially difficult implementation timeline by 2029?

The City of Helsinki is looking for solutions that can be implemented before 2029 – the Finnish Government has made the decision to ban the use of coal in energy production as of May 2029 onwards. In the application, the participants have to describe the estimated implementation schedule of the proposed solution, including risk factors that may have an impact on the implementation schedule. Implementation schedule is

one of the evaluation criteria, yet, not the only one. All evaluation criteria are presented in section 3.5. of the Competition program, available for download on the Challenge website.

Should we take the current political framework and committed political decisions as granted? Can the proposed solution also require political changes (legal, administrative, urban planning changes etc.)?

The current political framework is of course factual. In this Challenge competition we are looking for solutions that can significantly affect the cessation of coal use by 2029 and speed up the City of Helsinki's journey to becoming carbon neutral by 2035. The competition entries are "master plans" so the plan proposed can include one or more technological or other types of solutions; non-technological innovations are welcomed as well.

Corona on aiheuttanut aikataulun viivästymistä. Mitä rajoituksia asetatte yhteydenpidolle hankkeestamme kolmansien osapuolten kanssa?// The corona virus has affected the Helsinki Energy Challenge schedule. What restrictions will you set on contacting third parties about our project?

Koronaviruksen aiheuttamasta tilanteesta johtuen, kilpailun ilmoittautumisaikaa on pidennetty. Lisäksi, kilpailun ilmoittautumisajalle lisätään webinaareja ja muita online-tapahtumia. Järjestäjä myös avaa virtuaalisen yhteistyöalustan (Online collaboration platform) helpottamaan eri tahojen välistä yhteydenpitoa ja verkostoitumista. Kaikki ilmoittautumisajalle suunnitellut fyysiset tapahtumat on toistaiseksi peruttu eikä niitä tulla järjestämään niin kauan koronaviruksen aiheuttama tilanne ei sitä salli. // Due the coronavirus (COVID-19) situation, the application phase has been extended until 30 September. In addition, we will add webinars and other online events to the Application phase. Also an Online Collaboration platform will be offered, to facilitate the communication and networking between different parties. All physical events planned to the Application phase, have been cancelled and will not be held for as long as the situation caused by the coronavirus does not allow it.

Does competition matter where energy is produced, ie whether energy can be imported and produced elsewhere than in Helsinki?

The City of Helsinki is looking for solutions on how to decarbonise the heating of Helsinki, using as little biomass as possible; solutions that will help the City of Helsinki to get rid of coal-based heat production by 2029. If the competition entry includes such solutions where heat is produced outside Helsinki, the competition entry should also include a plan on how to import that heat to Helsinki as well as a cost-estimation for this. Evaluation criteria that will be used when evaluating the proposed solutions, can be found in the Competition program section 3.5.

Which potential for renewable power supply like photovoltaic and wind turbines as on- and off-shore can be assumed to supply green electricity for power to heat solutions?

This potential should be assessed by the Challenge participants themselves. Basic background information has been given in the background report (available for download on the Challenge website: <https://energychallenge.hel.fi/heating-helsinki-today>). Basic information also available on the Finnish wind atlas: <http://www.tuuliatlas.fi/en/index.html>. Solar energy potential in Helsinki metropolitan area can be estimated with the online map tool, which provides estimates on the annular solar energy yields in the rooftops in Helsinki, Espoo and Vantaa areas at a building level granularity. Available at: <https://aurinkosahkoakotiin.fi/hsyn-karttapalvelu-kertoo-aurinkosahkon-potentiaalin-katollasi/>.

Which kind of industrial waste heat as heat sources for the district heating directly or for heat pumps can be assumed as reliable sources in the future (2035 and beyond)?

If the Challenge competitor is proposing a solution that is based on industrial waste heat, the competitor itself should make a credible estimation of the future waste heat sources and present it as part of the competition entry. No comprehensive study on the future sources has been made.

Where could we find more detailed information about the Helsinki building stock? It would be ideal to have a building typology (examples for single family house, small multi-family, large multi-family, highrise residential, school, office, trade, etc., for different building age classes, with the corresponding construction types and their specific heat consumption) and the respective square meters of living area. Is anything similar available?

A 3D information model of Helsinki building stock with information related to energy consumption is available at Helsinki Energy and Climate Atlas. The data is also available from Helsinki Region Infoshare. Energy and Climate atlas is available at: <https://kartta.hel.fi/3d/atlas/#/>.

Is there any architectural or correspondent protection for Salmisaari power plant buildings? If there is such, how extensive is it (exterior? interior?)?

There are no architectural or correspondent protection for the buildings. In the current plans, the Salmisaari area will remain as an energy production area also when there is no coal-fired production anymore.

Are there any future construction plans for development of Salmisaari power plant area?

In the current plans, the Salmisaari area will remain as an energy production area also when there is no coal-fired production anymore. No other plans available yet.

Would financial benefits of power plant area (land use) availability for e.g. residential and office housing be assessed as criteria for economic feasibility of a proposal?

The evaluation criteria that will be used when assessing the proposed solutions can be found in section 3.5. of the Competition program. Cost impact is one of the evaluation criteria – the participants are required to present the total costs of their solutions; e.g. development work, implementation/investment costs, usage/operation costs. Also implementation feasibility is one of the evaluation criteria – the participants should describe the relevant feasibility of the proposed solution; it is up to the Challenge participant to decide, depending of the proposed solution, which factors to include in the description.

Do third parties have or potentially will get access to the electricity and/or district heating grid?

Third parties have access to electricity grid according to the electricity market law. The access to district heating network is not regulated, but Helen Ltd. (owned by the City of Helsinki) in Helsinki currently has so called open district heating concept, where they can purchase the heat produced by district heating customers. District heating companies often buy heat produced by third parties when the requirements for the quality can be met, and the price of the heat is competitive. At this stage of the competition the competitors can present their solutions assuming they would get access to the grid, provided the technical requirements, such as required heat level, are met. This can be described under the implementation feasibility evaluation criteria – it is up to the Challenge participant to decide how this is included in the description.

What is the level of detail needed at submission deadline?

In the application phase, it is expected that the participants provide enough information so that the organizer understands the uniqueness and benefits of the solution(s) in the context of Helsinki. In the Competition program, section 3.5., it is described what is required in the Applications. Further instructions on what is expected can be found in the application portal available at: <https://applychallenge.hel.fi/en/login>.

Is industrial waste as feedstock considered as renewable? Or should it be avoided as well as biomass?

The renewability of the industrial waste depends on the origin of the waste material. The competition criteria includes assessment of the natural resources needed and the impact on emissions, where also waste as a feedstock is taken into account. There is no general need to avoid industrial waste, but the evaluation depends on the potential other use of this waste stream (e.g. potential to utilise in other locations) and the emissions related to utilising the waste stream.

What is the role of Helen? Could companies such as Fortum be considered as consortium partner?

Helsinki Energy Challenge is a public competition open to everybody globally. Helen Ltd. is 100% owned by the City of Helsinki and currently the producer and distributor of district heating in Helsinki. The proposed solutions can be either implemented as part of Helsinki's current district heating system or, solutions requiring system-level change.

What would be the most accurate source of information to know the total rooftop area of buildings in Helsinki, or general buildings information? If you can please provide the most reliable source.

Solar energy potential in Helsinki metropolitan area can be estimated with the online map tool, which provides estimates on the annular solar energy yields in the rooftops in Helsinki, Espoo and Vantaa areas at a building level granularity. Available at:

<https://aurinkosahkoakotiin.fi/hsyn-karttapalvelu-kertoo-aurinkosahkon-potentiaalin-katollasi/>.

Do you have Figure 16 of the Background Material (Map of Helsinki district heating network) in better quality? What are the blue and the orange lines? What kind of pipelines are these?

Unfortunately, we do not have the Figure 16 Helsinki district heating network map in better quality. The blue lines in the map depict the tunnel transmission lines in Helen network, the pipe size in this line being up to DN1000 leaving the Vuosaari plant. The orange lines are parts of the smaller distribution network.

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